

B4
179/01406 A02

least one of said patterns are selected such that the interaction of said first and second patterns produces a Moiré image exhibiting continuous three-dimensional visual effects; and wherein said device is constructed and operative for small area use in a credit card.

REMARKS

The present application contains 29 claims of which claims 1 and 29 are independent claims. Claims 1-29 stand rejected. In the present amendment claims 1, 5-9, 27-29 are amended and new claims 30-32 are added. Marked up versions of the amended claims showing the changes made to the claims by the amendments are attached hereto.

Claims 1-28 are rejected under 35 U.S. C. 112, second paragraph as being indefinite. Claim 1 is indefinite under 35 U.S. C. 112 because in the phrase "slow variation" which appears in the claim the term "slow" is a relative term for which the specification does not provide a standard and the term "variation" does not indicate what is being varied. Claims 2-28 are indefinite through dependence on claim 1. Claims 27 and 28 are also indefinite because they use the phrase "such as".

Claim 1 is amended to delete the word "slow". The deletion broadens the scope of the claim. Applicants traverse the finding of indefiniteness regarding the word "variation". The word "variation" refers to the word "period" in the claim. The only variation possible in a period is its length and therefore the use of the word "variation" cannot be indefinite. Applicants submit that amended claim 1 is not indefinite and that therefore claims 2-28, as dependent on amended claim 1, are no longer indefinite.

Claims 27 and 28 are amended to delete the words "such as" and the words following the words "such as" in each claim, removing thereby the source of their indefiniteness.

Claims, 1, 2, 10, 11, 14, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by McCurry, R.E, "Three Dimensional Displays Utilizing Multiple Source Moiré Patterns" (hereinafter D1). Claim 1 is amended to recite the limitations that both the first and the second surfaces have thereon the image for which the illusion of depth is being generated. At least a part of the image on the first surface is modulated by a periodic pattern of substantially transparent features and at least a part of the image on the second surface is modulated by a periodic pattern of features. The amendments to claim 1 are supported by Figs. 1-4 and the discussion of the figures in the specification. Both the first and second surfaces are imprinted with an image of the sphere for which the illusion of depth is to be

179/01406 A02

created. The pattern on the first surface must be substantially transparent to allow light from the image on the second surface to pass through the first surface (e.g. page 12 first paragraph).

In D1 only the first surface is indicated as having the image thereon. The second surface is a "view grid" "in the form of a planar horizontally period array of transparent holes or slits in an otherwise opaque sheet of material". None of the other prior art documents cited by the Examiner teaches an image on both a first and second surface. Amended claim 1 is therefore neither anticipated by D1 nor by any of the other cited prior art documents. Nor is claim 1 made obvious by material in the cited prior art.

Dependent claims 2, 10, 11 and 14 are not anticipated by D1, at least as a result of their dependence on amended claim 1.

Claim 29 is amended include the limitation that at least a part of both first and second surfaces are printed with "the image and wherein the image on each surface is modulated...". Amended claim 29 is not anticipated by D1 for the same reasons that amended claim 1 is not anticipated by D1.

Claims 5, 6 and 9 are amended to include the word "Moiré" before the word image in the second line of the claims to explicitly identify the inherent identification of the "image" in the second line as the Moiré image.

Claims 7 and 8 are amended to conform the claims to the amendments of claim 1.

Claims 3-4 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of US 5,694,229 to Drinkwater.

Claims 5 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of US 4,889,421 to Cohen.

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of US 3,811,213 to Eaves.

Claims 12, 13, 15-17 and 21, 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of US 5,586,089 to McGarvey.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of US 5,384,999 to Roche.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of US 5,525,383 to Witkowski.

All the claims rejected under U.S.C. 103(a) depend from amended claim 1 and are therefore patentable at least because amended claim 1 is patentable.

179/01406 A02

With regard to claim 28, applicants respectfully submit that the combination of McCurry in view of US 5,694,229 to Drinkwater applied by the Examiner does not provide a prima facie case of obviousness. McCurry teaches generating Moiré patterns using a surface 1 and a view grid 2, which are spaced apart from each other (by distance "d"). Drinkwater teaches generating Moiré pattern effects on a credit card using a hologram. The examiner submits that Drinkwater "invites" using the invention of McCurry on a credit card size area by extolling the advantages of the use of the Moiré effect in credit cards.

Applicants suggest that simply extolling the advantages of Moiré patterns for use in credit cards does not provide impetus for using a particular method, such as that of Drinkwater, for generating the Moiré patterns. Drinkwater in fact teaches away from using the methods of McCurry by teaching generating Moiré patterns in a manner totally different from the manner in which McCurry generates the Moiré patterns. Holograms, such as those typically used in credit cards are generated optically as a pattern of ridges and depressions on a *single surface* of a suitable material and are well known for their applicability to small and even microscopic areas. Drinkwater cannot be understood to suggest replacing a single surface technique known to be suitable to small areas with a two surface technique that requires that the surfaces be separated from each other.

New added claims 30 and 31 recite the limitations deleted from claims 26 and 27 respectively.


New added claim 32 is a new independent claim that recites the limitation of old claim 1 and the limitation of a small area credit card recited in old claim 28. In view of the arguments presented with regard to the patentability of claim 28, applicants submit that new claim 32 is patentable and not prima facie over McCurry in view Drinkwater.

In addition, applicant respectfully points out that an Information Disclosure Statement was filed together with the application on March 14, 2000, and the PTO-1449 form was never returned to us initialed by the Examiner. Applicant is resubmitting the form and respectfully requests that the items listed thereon be initialed by the Examiner to ensure that they appear on the face of the patent issuing on the present application. Applicant assumes that the art has already been considered by the Examiner in accordance with MPEP 609.

179/01406 A02

In view of the above remarks applicants submit that all the claims in the amended claim set are patentable. A notice of allowance is respectfully requested.

Respectfully submitted,
Benny PESACH


Paul Fenster
Reg. No. 33,877

January 6, 2003
Roy N. Envall, Jr.
c/o Anthony Castorina
2001 Jefferson Davis Highway
Arlington, VA 22202
Tel: (703) 415-1581

043/01406 A02

MARKED UP CLAIMS

1. (Amended) A device for displaying an image with an illusion of depth, comprising:

a first surface, having the image thereon ~~said first surface being substantially transparent and at least part of said first surface displaying which image is modulated by~~ a first pattern of substantially transparent features of periodic nature ~~with~~ having a substantially constant period; and

a second surface, having the image thereon at least part of which image ~~said second surface is modulated by displaying~~ a second pattern of features of periodic nature ~~with~~ having a substantially constant period;

wherein said first surface is intermediate an observer and said second surface;

wherein said period of said second pattern differs incrementally from the period of said first pattern;

wherein said period of at least part of at least one of said patterns has a slow variation;

wherein said first and second surfaces are spaced apart by a distance larger than the period of either of said first and second patterns; and

wherein said incremental difference in the periods of the patterns, said spacing between the first and second surfaces, and said variation in the period ~~of said at least part of at least one of said patterns~~ are selected such that the interaction of said first and second patterns produces a Moire image exhibiting continuous three-dimensional visual effects.

5. (Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein the views of said Moire image as seen by each of an observer's two eyes are mutually displaced in such a way as to exhibit realistic three dimensional effects by means of the static parallax effect.

6. (Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein the appearance of said Moire image changes with change in the position of a viewer in such a way as to exhibit realistic three dimensional effects by

043/01406 A02

means of the motion parallax effect.

7. (Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein the ~~feature-size~~ of said features ~~image~~ changes with the apparent depth in such a way as to comply with the mind's perception that distant objects appear to have narrower details and close objects have wider details.

8. (Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein the ~~feature-size~~ of said features ~~image~~ changes with the apparent depth in such a way as to comply with the geometric perspective effects that features on a tilted surface appear narrower than those on a flat surface by approximately the cosine of the tilt angle.

9. (Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein the brightness of features of said Moire image changes with the apparent depth in such a way as to comply with the shading effect or any other desired lighting effect.

27. (Twice Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein said device is constructed and operative for large area use ~~such as in billboards~~.

28. (Twice Amended) A device for displaying an image with an illusion of depth according to claim 1 and wherein said device is constructed and operative for small area use ~~such as in credit cards~~.

29. (Amended) A device for displaying an image with an illusion of depth, comprising:
first and second surfaces, first one of which is transparent, each having at least part of its surface printed with the image and wherein the image on each surface is modulated by a predetermined pattern of substantially periodic features;
said surfaces being spaced apart by a distance considerably larger than the period

043/01406 A02

of said features; and

the spacing of said surfaces being varied in a predetermined manner such that the interaction of said two patterns produces a Moire image exhibiting continuous three dimensional visual effects when viewed from said first surface side of the device.